

US-PAT-NO: 6008057
DOCUMENT-IDENTIFIER: US 6008057 A
TITLE: Immunoassay system

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Thus, in the method of the present invention, a substrate is coated with a tagged immobilized ligand to establish a reaction surface on which an analyte of interest in the sample to be assayed will specifically bind to the ligand to form a complex. Specific binding is effected by contacting the sample with the immobilized ligand which has been preferably pretagged with a first label that, for example, when properly excited, fluoresces to provide a first distinguishable signal at a first wavelength $w_{sub.1}$. In a competition type of assay using the method and product of the present invention, a known quantity of the analyte of interest with which the captor ligand will react by specific binding, is tagged with a second label that, when appropriately excited, thereby provides a second signal distinguishable from the first signal. Distinguishing the second signal from the first may be accomplished either by using a second label that will fluoresce at a second wavelength $w_{sub.2}$, or by temporal separation using the same label for both the captor ligand and the known quantity of analyte. In temporal separation, fluorescence from the ligand bound to the solid phase will be measured first in the absence of analyte. The second signal from the tagged analyte is then measured as a rate of change in the total fluorescent signal. Similarly, rate of change

measurements can be utilized with different labels, with
the rate of change in
the amount of the second label showing the kinetics of the
reaction.

US-PAT-NO: 4363874

DOCUMENT-IDENTIFIER: US 4363874 A

TITLE: Multilayer analytical element having
an impermeable radiation nondiffusing reflecting
layer

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The label conjugate in this system is composed, in its label portion, of a coenzyme-active functionality, and the ability of such coenzyme label to participate in an enzymatic reaction is affected by binding of the label conjugate with its binding partner. The rate of the resulting enzymatic reaction is measurable by conventional detectant systems to yield an ultimately detectable signal. Assay systems of this type are described in commonly assigned, copending application Ser. No. 894,836, filed Apr. 10, 1978 (corresponding to published German OLS No. 2,618,511); and in Anal. Biochem. 72:271 (1976), Anal. Biochem. 72:283 (1976) and Anal. Biochem. 76:95 (1976).

The label conjugate in this system is composed, in its label portion, of an enzyme modulating functionality such as an enzyme inhibitor or stimulator, and the ability of such modulator label to modulate the activity of an enzyme is affected by binding of the label conjugate with its binding partner. The rate of the resulting enzymatic reaction is measurable by conventional detectant systems to yield an ultimately detectable signal. Assay systems of this type are described in commonly owned U.S. Pat. No. 4,134,792.